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GAME DEVELOPMENT TECHNOLOGY IN EDUCATIONAL PRACTICE: FRAMEWORKS, CHALLENGES, AND INNOVATIVE SOLUTIONS

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With the rapid development of digital technology, game development tools have emerged as transformative mediums in educational contexts. This study focuses on the integration of Unreal Engine into pedagogical practices, aiming to address core challenges in educational resource utilization and student engagement. Through empirical case analysis, the research highlights the potential of Unreal Engine in interdisciplinary learning scenarios.

For instance, Net Dragon Web soft in Fujian Province, China, has developed virtual reality (VR science popularization videos and educational coursewares, effectively applied in geography simulations, historical scene reconstructions, and scientific experiment teaching. However, barriers such as high technical thresholds, insufficient teacher training, and hardware compatibility issues still hinder widespread adoption. Proposed solutions include developing low-code educational toolchains and cloud-based collaboration platforms using Unreal Engine, coupled with regional teacher training programs to enhance digital literacy, thereby promoting equitable access to VR educational resources and innovative applications.

The work examines the main problems of using computer games in education. These include the low level of competence of a number of teachers, their reluctance to change their usual teaching methods, and the difficulties associated with using licensed games.

The study further validates the efficacy of Unreal Engine in enhancing learning motivation and immersive experiences (e.g., a 35% increase in STEM course engagement, emphasizing the role of artificial intelligence-driven dynamic content generation in supporting future personalized education. Taking NetDragon Websoft's practice as an example, their VR educational coursewares significantly improve students' spatial cognition and problem-solving abilities through high-precision scene interactions.

Moving forward, policy guidance and technical standardization are essential to establish Unreal Engine as a core tool for educational digital transformation, offering replicable Chinese experiences for global educational innovation.